

Remarks

Claims 1-12 and 26-38 are presently pending. Claims 13-25 and 39-54 have been withdrawn from consideration. By this paper, claims 1, 9, 10, 26, and 31 have been amended and claim 8 has been canceled.

Claim 31 stands objected to for depending from method claim 22. Claim 31 has been amended herein to depend from claim 26.

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,952,687 to Kawakubo et al. ("Kawakubo"). Claim 1 requires a plurality of capacitor trenches with a bottom electrode formed within the trenches. Kawakubo discloses a bottom electrode 13 being disposed only within a single trench. Figures 9-12 of Kawakubo disclose multiple memory cells, but each capacitor includes a single trench and a single bottom electrode specific to that trench. Kawakubo does not teach or suggest a single bottom electrode extending throughout multiple trenches.

Claim 1 also requires that the insulating material and conductive material serve as a form for defining a plurality of capacitor trenches. Kawakubo does not teach or suggest that insulating material 9 and contact plug 11 define multiple capacitor trenches. In Kawakubo, the contact plug 11 is specific to a corresponding capacitor with a single trench.

Claim 1 further requires that the bottom electrode disposed within multiple trenches is in contact with a conductive material. Kawakubo discloses a bottom electrode 13 in a single trench being in contact with a layer 12 and a contact plug 11. There is no teaching or suggestion in Kawakubo of the layer 12 or contact plug 11 contacting a bottom electrode 13 in multiple trenches. In Kawakubo, each trench capacitor is assigned to a corresponding transistor and electrical communication between the two is by the contact plug 11. Kawakubo does not disclose the layer 12 or contact plug 12 being in communication with more than one trench capacitor.

Claim 1 further stands rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent No. 6,437,387 to Gutsche ("Gutsche"). As with Kawakubo, Gutsche discloses a single trench capacitor that is in electrical communication with a transistor to form a memory cell. Claim 1 requires a plurality of capacitor trenches with a bottom electrode formed within the trenches. Gutsche discloses conductive layers 36, 37 that are disposed only within a single trench. The

conductive layers 36, 37 do not extend into other capacitor trenches. Claim 1 also requires that the insulating material and conductive material serve as a form for defining a plurality of capacitor trenches. In Gutsche, the dielectric coating 26 and the conductive plug 27 define a single trench, not multiple trenches. Claim 1 further requires that the bottom electrode disposed within multiple trenches is in contact with a conductive material. Gutsche teaches that the conductive plug 27 is only in contact with the layers 36, 37 in a single trench. Gutsche does not teach or suggest that the conductive plug 27 is in contact with bottom electrodes in multiple trenches.

Claim 26 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Kawakubo. Claim 26 requires a bottom electrode plug disposed within the capacitor trench. Kawakubo teaches a contact plug 11 that is disposed below the bottom electrode and outside of the capacitor trench. The capacitor trench provides a capacitive function and a bottom electrode plug 144 influences that capacitive function. The contact plug 11 serves to provide electrical communication between a capacitor and a transistor and does not provide a capacitive function. The contact plug 11 is not located in a capacitor trench and serves a completely different function.

Claim 26 further requires that a capacitor dielectric and a top electrode are at least partially formed on and around the bottom electrode plug. Such an embodiment is illustrated in Figure 15 wherein a bottom electrode plug 144 extends into the capacitor trench and the capacitor dielectric 150 and top electrode 160 are disposed thereon. Kawakubo does not teach or suggest the dielectric 14 or top electrode 15 being formed on or around a bottom electrode plug. The dielectric 14 is formed on the bottom electrode 13 and not on the contact plug 11. The top electrode 15 is not formed around the contact plug 11.

Claim 26 further stands rejected under 35 U.S.C. § 102(b) as being anticipated by Gutsche. As with Kawakubo, the conductive plug 27 does not extend into the capacitor trench. The dielectric layer 38 and layer 39 are not disposed on and around the conductive plug 27 as required by claim 26. The dielectric layer 38 is formed on layer 37 and coating 26 and not on the conductive plug 27. The layer 39 is not formed around the conductive plug 27. The conductive plug 27 serves to provide electrical communication between a capacitor and transistor and not to influence capacitive performance.

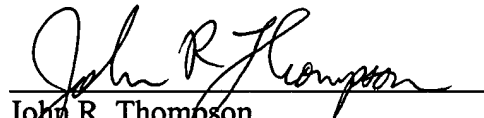
Recited limitations of claim 1 and 26 are not found in the cited references. It is well settled that under 35 U.S.C. § 102:

an invention is anticipated if . . . all the claim limitations [are] shown in a single art prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim.

Richardson v. Suzuki Motor Co., Ltd., 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). The Applicant respectfully submits that claims 1 and 26 represent patentable subject matter. As depending claims 2-7, 9-12, and 27-38 depend from their respective independent claims and include all their limitations, they likewise contain patentable subject matter.

Applicant believes the application is now in condition for allowance and respectfully requests the same. The Examiner is encouraged to telephone the undersigned if any issues remain.

Respectfully submitted,



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